

## REMARKS

Claims 1-17 were presented in the application as filed. Claims 9-11 and 13-17 were amended in a Preliminary Amendment concurrently filed with the application. Claim 3 is cancelled, and claims 1, 2, 7, 12, and 13-17 are currently amended. Claims 1, 2, and 4-17 are pending. Entry of these amendments, reconsideration of the application, and allowance of all claims pending herein are respectfully requested in view of the remarks below.

Claim 1 has been amended to include a limitation of claim 2, *i.e.*, a reducing gas selected from glyoxylic acid and imidazole. Claim 2 has been amended to encompass only glyoxylic acid as the reducing gas. Claim 7 has been amended to remove formaldehyde, oxalic acid, and 2-propanol from the group of reducing gases recited. Claim 12 has been amended to replace plasma-activated hydrogen gas with glyoxylic acid as the reducing gas pulsated into the chamber. Claims 13-17 have been amended to correct a typographical error. Claims 13-17 had been made dependent on claim 12. No new matter has been added.

## CLAIM REJECTIONS UNDER 35 U.S.C. § 112

The Office Action states that claims 13-15 and 17 are rejected under 35 U.S.C. § 112, second paragraph, specifically for lacking antecedent basis. Claims 13-15 and 17 have been amended to be dependent on claim 12. Reconsideration of claims 13-15 and 17 under 35 U.S.C. § 112, second paragraph is requested.

## CLAIM REJECTIONS UNDER 35 U.S.C. § 102

The Office Action states that claims 1-6 and 13-17 are rejected under 35 U.S.C. § 102(b) as being anticipated by DelaRosa *et al.* (US 6,527,855). Claim 1 is independent.

A claim is anticipated if each and every element set forth in the claim is found in a single prior art reference.

As to claim 1, DelaRosa *et al.* disclose cobalt thin films prepared by atomic layer deposition (ALD). DelaRosa *et al.* generically teach the use of a reducing agent gas, such as an agent possessing a hydride, in the ALD processes disclosed therein and specifically teach only the use of silane and hydrogen as a reducing gas. Nowhere within DelaRosa *et al.* is taught the use of glyoxylic acid and imidazole as reducing agents as recited in Applicants' amended claim 1.

In light of the above, Applicants respectfully assert that DelaRosa *et al.* does not disclose each and every element as recited in Applicants' amended claim 1, *i.e.*, a reducing gas selected from glyoxylic acid and imidazole, and therefore does not anticipate Applicants' amended claim 1. Reconsideration of claim 1 under 35 U.S.C. § 102(b) is requested. Claims 5-6, which depend from claim 1 and add further limitations to an allowable claim, are believed allowable for the same reasons.

Amended claims 13-17, which depend from claim 12 and add further limitations to an allowable claim, are believed allowable for the same reasons as argued *infra* against the 35 U.S.C. § 103(a) rejection of claim 12.

#### **CLAIM REJECTIONS UNDER 35 U.S.C. § 103**

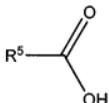
The Office Action states that claims 7, 8, and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over DelaRosa *et al.* in view of Hujanen *et al.* (WO 2002/45167).

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a

reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations [see, MPEP 2143].

The deficiency of DelaRosa *et al.* is discussed above in regard to Applicant's claim 1. The same deficiency exists as applied to Applicant's amended claims 7 and 12. Applicants respectfully reasserts that DelaRosa *et al.* does not teach each and every element, as recited in Applicants' amended claims 7 and 12, *i.e.*, a reducing gas selected from glyoxylic acid and imidazole.

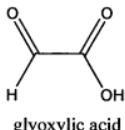
As to claim 7, Hujanen *et al.* discloses thin films for magnetic devices and methods of preparation thereof. ALD is one method of preparation disclosed. Reducing agents taught for use in the ALD process include hydrogen, carbon monoxide, alcohols, aldehydes, and carboxylic acids; see page 5, lines 23-27. Specific carboxylic acids taught are described by formula VII; see page 12 lines 11-15.



VII

$\text{R}^5$  is hydrogen, linear or branched C<sub>1</sub>-C<sub>20</sub> alkyl or alkenyl group. Preferred groups are methyl, ethyl, propyl, butyl, pentyl, and more preferred is methyl or ethyl. Specific preferred examples are formic and acetic acid with formic acid the most preferred.

Hujanen *et al.* does not remedy the deficiency of DelaRosa *et al.* Hujanen *et al.* does not teach a reducing gas selected from glyoxylic acid and imidazole. The reducing agents, specifically glyoxylic acid, of Applicant's claim 7, are not encompassed by the carboxylic acids used and defined above in Hujanen *et al.*



The carboxylic acids of formula VII limit R<sup>5</sup> to an alkyl or alkenyl group. The glyoxylic acid of Applicant's claim 7 has R<sup>5</sup> as a formyl group. Glyoxylic acid is a dual functional compound with both an acid group and an aldehyde group. It is also known as an alpha-keto acid. This group is not within the scope of R<sup>5</sup> as defined in Hujanen *et al.*

Additionally it would not be obvious and there would be no motivation to one having ordinary skill in the art to extend the definition of R<sup>5</sup> to include an aldehyde functional group, as it is disparate from the alkyl and alkenyl groups taught by Hujanen *et al.* The Applicant respectfully asserts that Hujanen *et al.* does not disclose or suggest each and every element, as set forth in Applicant's amended claim 7, *i.e.*, a reducing gas selected from glyoxylic acid and imidazole.

In light of the above, Applicant respectfully asserts that a *prima facie* case of obviousness has not been established as DelaRosa *et al.* and Hujanen *et al.*, independently or in combination, do not disclose or suggest each and every element as set forth in Applicant's amended claim 7, *i.e.*, a reducing gas selected from glyoxylic acid and imidazole, and therefore do not render Applicant's amended claim 7 obvious.

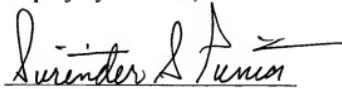
Reconsideration of claim 7 under 35 U.S.C. § 103(a) is requested. Claims 8, 9, 10, and 11, which depend from claim 7 and add further limitations to an allowable claim, is believed allowable for the same reasons.

Also in light of the above, Applicant respectfully asserts that a *prima facie* case of obviousness has not been established as DelaRosa *et al.* and Hujanen *et al.*, independently or in combination, do not disclose or suggest each and every element as set forth in Applicant's amended claim 12, *i.e.*, a reducing gas selected from glyoxylic acid and therefore do not render Applicant's amended claim 12 obvious. Reconsideration of claim 12 under 35 U.S.C. § 103(a) is requested.

There being no other outstanding issues, it is believed that the application is in condition for allowance, and such action is respectfully requested.

If a telephone conference would be of assistance in advancing the prosecution of the subject application, Applicants' undersigned agent invites the Examiner to telephone him at the number provided.

*Respectfully submitted,*



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